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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/733,995	12/11/2003	Reza Ghasemi	N0484.70571US00	2044

23628 7590 02/17/2010
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EXAMINER	
GODBOLD, DOUGLAS	

ART UNIT	PAPER NUMBER
2626	

MAIL DATE	DELIVERY MODE
02/17/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/733,995	GHASEMI ET AL.	
	Examiner	Art Unit	
	DOUGLAS C. GODBOLD	2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 February 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *20100205*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This Office Action is in response to correspondence filed February 5, 2010 in reference to application 10/733,995. Claims 1-16 are pending and have been examined.

Information Disclosure Statement

2. The Information Disclosure Statement filed February 5, 2010 has been accepted and considered in this office action.

Response to Amendment

3. The amendment filed February 5, 2010 has been accepted and considered in this office action. Claims 1, 4, 7, 10, and 13 have been amended and considered in this office action.

Response to Arguments

4. Applicant's arguments, see Remarks, filed February 5, 2010, with respect to the rejection(s) of claim(s) 1-16 under Mahajan, Guerra, Shao, and Yuschik have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Yuschik in view of Mahajan. The examiner believes that these two references teach the limitations and would have been obvious to combine as laid out in the rejection below. .

Claim Rejections - 35 USC § 103

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. Claims 1, 3, 4, 7, 9, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yuschik (US Patent 7,139,706) in view of Mahajan et al. (US Patent 7,117,153).

7. Consider claim 1, Yuschik teaches a method of evaluating grammars associated with a voice portal on a portal server (Fig 3), said method comprising:

receiving at least one measure of how distinguishable the current grammar is from other grammars of a set of active grammars that are active when the current grammar is active, the set of active grammars including the current grammar and at least one grammar from a second menu of the voice portal, the at least one measure based at least in part on analysis of the test pattern with respect to the set of active grammars (steps 340-360, acoustic analysis is performed to compare between different sub-vocabularies or menu options [active vocabularies in the instant application] to determine acoustic similarities. Column 12 lines 25-64); and

determining whether to modify the current grammar based at least in part on the at least one measure (system may choose to substitute alternative words; column 12 line 50).

Yuschik does not specifically teach:

generating for a current grammar of the voice portal representing a valid input for a first menu of the voice portal, a test input, the test input for the current grammar including a test pattern;

providing the test input to the voice portal on the portal server using a voice server.

In the same field of predicting word errors, Mahajan teaches generating for a current grammar of the system put, the test input for the current grammar including a test pattern (At step 202, a portion of training data 304 is spoken by a person 308 to generate a test signal, in order to test the recognition models; Column 5 line 11.);

providing the test input to the voice system on the portal server using a voice server (The acoustic signal is converted into waveforms by receiver 309 and feature extractor 310, and the feature vectors are provided to a decoder 312; column 5 lines 13-15.).

Therefore it would have been obvious to one of ordinary skill in the art to substitute actual acoustical data as taught by Mahajan for the phonetic representations in Yuschik in order to facilitate a more accurate measure of confusion between sub-vocabularies.

8. Consider claim 3, Yuschik teaches modifying the current grammar to create a grammar if the at least one measure indicates that the current grammar is not sufficiently distinguishable (figure 3, step 340 does an acoustic analysis to determine similarity in order to reduce recognition error, step 350 selects alternative words if

necessary, thereby providing a less confusable alternative to the words available to be recognized; column 11 line 34- column 13 line 3).

9. Consider claim 4, Yuschik teaches the method of claim 3, further comprising the steps of:

iii) receiving at least one measure how distinguishable the modified grammar is from other grammars of the set of active grammars that are active when the modified grammar is active, the current grammar being one grammar of the set of active grammars (steps 340-360, acoustic analysis is performed to compare between different sub-vocabularies or menu options [active vocabularies in the instant application] to determine acoustic similarities. Column 12 lines 25-64). ; and

(iv) modifying the modified grammar and repeating steps (i) through (iii) until the measure of how distinguishable the modified grammar is from other grammars of the set of active grammars that are active when the modified grammar indicates that the modified grammar is sufficiently distinguishable from the other grammars of the set of active grammars that are active when the modified grammar is active. (This is merely reanalyzing the output of the recognizer after the grammar has been updated. Figure 3 of Yuschik shows that the acoustical analysis of 340 is repeated until the acoustical difference is great enough to allow for accurate speech recognition.).

Yuschik does not specifically teach:

(i) generating a test input for the modified grammar, the test input including a test pattern for the grammar (Mahajan At step 202, a portion of training data 304 is spoken

by a person 308 to generate a test signal, in order to test the recognition models; Column 5 line 11.);

(ii) providing the test input for the modified grammar to the voice portal () (Mahajan, the acoustic signal is converted into waveforms by receiver 309 and feature extractor 310, and the feature vectors are provided to a decoder 312; column 5 lines 13-15.);

In the same filed of predicting word errors, Mahajan teaches:

(i) generating a test input for the modified grammar, the test input including a test pattern for the grammar (Mahajan At step 202, a portion of training data 304 is spoken by a person 308 to generate a test signal, in order to test the recognition models; Column 5 line 11.);

(ii) providing the test input for the modified grammar to the voice portal () (Mahajan, the acoustic signal is converted into waveforms by receiver 309 and feature extractor 310, and the feature vectors are provided to a decoder 312; column 5 lines 13-15.);

Therefore it would have been obvious to one of ordinary skill in the art to substitute actual acoustical data as taught by Mahajan for the phonetic representations in Yuschik in order to facilitate a more accurate measure of confusion between sub-vocabularies.

10. Consider claim 7, Yuschik teaches A Computer readable storage medium encoded with instructions which, when executed by a computer, cause the computer to

perform a method of evaluating grammars associated with a voice portal on a portal server (Fig 3, col. 1 line 26 shows system embodied on a computer which requires storage mediums), said method comprising:

receiving at least one measure of how distinguishable the current grammar is from other grammars of a set of active grammars that are active when the current grammar is active, the set of active grammars including the current grammar and at least one grammar from a second menu of the voice portal, the at least one measure based at least in part on analysis of the test pattern with respect to the set of active grammars (steps 340-360, acoustic analysis is performed to compare between different sub-vocabularies or menu options [active vocabularies in the instant application] to determine acoustic similarities. Column 12 lines 25-64); and

determining whether to modify the current grammar based at least in part on the at least one measure (system may choose to substitute alternative words; column 12 line 50).

Yuschik does not specifically teach:

generating for a current grammar of the voice portal representing a valid input for a first menu of the voice portal, a test input, the test input for the current grammar including a test pattern;

providing the test input to the voice portal on the portal server using a voice server.

In the same field of predicting word errors, Mahajan teaches generating for a current grammar of the system put, the test input for the current grammar including a

test pattern (At step 202, a portion of training data 304 is spoken by a person 308 to generate a test signal, in order to test the recognition models; Column 5 line 11.);

providing the test input to the voice system on the portal server using a voice server (The acoustic signal is converted into waveforms by receiver 309 and feature extractor 310, and the feature vectors are provided to a decoder 312; column 5 lines 13-15.).

Therefore it would have been obvious to one of ordinary skill in the art to substitute actual acoustical data as taught by Mahajan for the phonetic representations in Yuschik in order to facilitate a more accurate measure of confusion between sub-vocabularies.

11. Claim 9 is directed towards a computer readable storage medium designed to execute a method similar to the method of claim 3 and is therefore rejected for similar reasons.

12. Claim 10 is directed towards a computer readable storage medium designed to execute a method similar to the method of claim 4 and is therefore rejected for similar reasons.

13. Claims 2 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yuschik in view of Mahajan as applied to claims 1 and 7 above, and further in view of Shao et al (2002/0049593).

14. Consider claim 2, Yuschik and Mahajan teach the method of claim 1, but does not specifically teach wherein deriving a measure of how distinguishable the current grammar is from other grammars of the set of active grammars includes deriving a confidence level and a set of n-best results for the test input, and wherein the method further comprises comparing the confidence level and set of n-best results for the test input with an expected value to assess the measure of how distinguishable the current grammar is from other grammars of the set of active grammars.

IN the same field of speech ambiguity measurement, Shao teaches wherein deriving a measure of how distinguishable the current grammar is from other grammars of the set of active grammars includes deriving a confidence level and a set of n-best results for the test input (paragraph 0046, best match in compared with 2^{nd} best, which is n-best, where n=2), and wherein the method further comprises comparing the confidence level and set of n-best results for the test input with an expected value to assess the measure of how distinguishable the current grammar is from other grammars of the set of active grammars (paragraph 0046, best match score and ambiguity ratio).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the art to use an ambiguity ratio as taught by Shao in the system of Yuschik and Mahajan in order to more accurately determine the similarities between two sub-vocabularies (Shao 0014).

15. Claim 8 is directed towards a computer readable storage medium designed to execute a method similar to the method of claim 2 and is therefore rejected for similar reasons.

16. Claims 5, 6, 11-13, 15, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yuschik in view of Mahajan as applied to claims 1 and 7 above and further in view of Randic (US Patent 6,275,797).

17. Consider claim 5, Yuschik and Mahajan teach the method of claim 1, but does not specifically teach modifying the test pattern to emulate one or more user voices prior to entering the test input into the voice portal.

In the same field of speech testing, Randic suggests modifying the test pattern to emulate one or more user voices prior to providing the test input to the voice portal (Figure 1 shows using a voice test file generated by a TTS engine used to test the voice path using recognition. This is a similar technique used to test the quality of recognition in Mahajan. Using a computer generated voice to generate the test file, Column 3 line 27, would inherently allow the test pattern to emulate whatever voice the computer generation system was configured to produce. Further, it is well known in the art that TTS engines can be configured to allow for the generation of multiple voice types, although the claim language suggest that just one voice could be used.).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use the computerized speech generation as taught by Randic in

place of the human speaker as taught by Yuschik and Mahajan in order to allow the speech recognizer to become more flexible through the quality analysis.

18. Consider claim 6, Yuschik and Mahajan teach the method of claim 1, but does not specifically teach modifying the test pattern to emulate the influence of one or more communications network qualities prior to providingthe test input into the voice portal.

In the same field of speech testing, Randic teaches modifying the test pattern to emulate the influence of one or more communications network qualities prior to entering the test input into the voice portal (figure 3 shows passing the voiced speech pattern through a transmission scheme in order to evaluate the effect that the voice channel has on recognition; column 4, line 31- column 7 line 29.).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the analysis of the voice channel as taught by Randic with the speech recognition quality evaluation of Yuschik and Mahajan in order to make the speech recognizer more robust.

19. Claim 11 is directed towards a computer readable storage medium designed to execute a method similar to the method of claim 5 and is therefore rejected for similar reasons.

20. Claim 12 is directed towards a computer readable storage medium designed to execute a method similar to the method of claim 6 and is therefore rejected for similar reasons.

21. Consider claim 13, Yuschik teaches A system for evaluating grammars of a voice portal executing on a portal server, the system comprising:

an analysis interface for extracting a current grammar from a set of active grammars of the voice portal, the current grammar representing a valid input for a first menu of the voice portal and being one grammar of the set of active grammars, the set of active grammars including at least one grammar from a second menu of the voice portal (steps 340-360, acoustic analysis is performed to compare between different sub-vocabularies or menu options [active vocabularies in the instant application] to determine acoustic similarities. Column 12 lines 25-64));

a results collector for analyzing the test input entered into the voice portal against the set of active grammars (steps 340-360, acoustic analysis is performed to compare between different sub-vocabularies or menu options [active vocabularies in the instant application] to determine acoustic similarities. Column 12 lines 25-64)); and

a results analyzer for deriving a set of statistics indicative of how distinguishable the current grammar is from other grammars of the set of active grammars (system may choose to substitute alternative words if not distinguishable; column 12 line 50).

Yuschik does not specifically teach:

a test pattern generator for generating a test input for the current grammar, the test input including a test pattern;

In the same field of predicting word errors, Mahajan teaches a test pattern generator for generating a test input for the current grammar, the test input including a test pattern (At step 202, a portion of training data 304 is spoken by a person 308 to generate a test signal, in order to test the recognition models; Column 5 line 11.);

Therefore it would have been obvious to one of ordinary skill in the art to substitute actual acoustical data as taught by Mahajan for the phonetic representations in Yuschik in order to facilitate a more accurate measure of confusion between sub-vocabularies.

But Yuschik and Mahajan do not teach specifically using a text to speech engine to enter data into the voice porthole.

In the same field of speech signal testing, Randic teaches using a text to speech engine to generate test signals for a system (Figure 1 shows using a voice test file generated by a TTS engine used to test the voice path using recognition. This is a similar technique used to test the quality of recognition in Mahajan. Using a computer generated voice to generate the test file, Column 3 line 27, would inherently allow the test pattern to emulate whatever voice the computer generation system was configured to produce.).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use the computerized speech generation as taught by Randic in

place of the human speaker as taught by Yuschik and Mahajan in order to allow for more efficient and more comprehensive quality analysis of the recognizer

22. Consider claim 15, Mahajan and Yuschik in view of Randic teaches the system of claim 13, but does not specifically teach modifying the test pattern to emulate one or more user voices prior to entering the test input into the voice portal.

However Randic teaches modifying the test pattern to emulate one or more user voices prior to entering the test input into the voice portal (Figure 1 shows using a voice test file generated by a TTS engine used to test the voice path using recognition. This is a similar technique used to test the quality of recognition in Mahajan. Using a computer generated voice to generate the test file, Column 3 line 27, would inherently allow the test pattern to emulate whatever voice the computer generation system was configured to produce. Further, it is well known in the art that TTS engines can be configured to allow for the generation of multiple voice types, although the claim language suggest that just one voice could be used.).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use the computerized speech generation as taught by Randic to emulate a user voice in order to allow for more efficient and more accurate quality analysis of the recognizer.

23. Consider claim 16, Mahajan teaches the system of claim 13, wherein the test pattern generator is modified to emulate the influence of one or more communications

network qualities prior to entering the test input into the voice portal. (figure 3 shows passing the voiced speech pattern through a transmission scheme in order to evaluate the effect that the voice channel has on recognition; column 4, line 31- column 7 line 29.).

24. Claims 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yuschik in view of Mahajan in view of Randic as applied to claim 13 above, and further in view of Shao et al (2002/0049593).

25. Consider claim 14, Yuschik and Mahajan and Randic teach the system of claim 13, but does not specifically teach wherein deriving a measure of how distinguishable the current grammar is from other grammars of the set of active grammars includes deriving a confidence level and a set of n-best results for the test input, and wherein the method further comprises comparing the confidence level and set of n-best results for the test input with an expected value to assess the measure of how distinguishable the current grammar is from other grammars of the set of active grammars.

In the same field of speech ambiguity measurement, Shao teaches wherein deriving a measure of how distinguishable the current grammar is from other grammars of the set of active grammars includes deriving a confidence level and a set of n-best results for the test input (paragraph 0046, best match in compared with 2^{nd} best, which is n-best, where n=2), and wherein the method further comprises comparing the confidence level and set of n-best results for the test input with an expected value to

assess the measure of how distinguishable the current grammar is from other grammars of the set of active grammars (paragraph 0046, best match score and ambiguity ratio).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the art to use an ambiguity ratio as taught by Shao in the system of Yuschik and Mahajan and Randic in order to more accurately determine the similarities between two sub-vocabularies (Shao 0014).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DOUGLAS C. GODBOLD whose telephone number is (571)270-1451. The examiner can normally be reached on Monday-Thursday 7:00am-4:30pm Friday 7:00am-3:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on (571) 272-7602. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DCG

/Richemond Dorvil/
Supervisory Patent Examiner, Art Unit 2626